

Shelly R. Miller
Bennington Marine Corp.
P.O. Box 875
Elkhart, IN 46515

Re: Registered Construction and Operation Status,
039-14119-00098

Dear Ms. Miller:

The application from Bennington Marine Corp., received on November 15, 2001, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.5, it has been determined that the following general boat assembly facility, to be located at 52791 CR 113, Elkhart, Indiana, is classified as registered:

- (a) One (1) assembly area, used for the assembly of fiberglass boats, exhausting to the atmosphere consisting of:
 - (1) Cleaning operations with volatile organic compounds;
 - (2) Gluing operations with volatile organic compounds;
- (b) One (1) assembly area, used for the assembly of pontoon boats, exhausting to the atmosphere consisting of:
 - (1) Cleaning operations with volatile organic compounds;
 - (2) Water-based gluing operations with volatile organic compounds;
- (c) Paved and unpaved roads and parking lots with public access;
- (d) Equipment used to collect any material that might be released during a malfunction, process upset, or spill cleanup, including catch tanks, temporary liquid separators, tanks, and fluid handling equipment;
- (e) Welding operations with particulate matter emissions less than 5 pounds per hour or 25 pounds per day; and
- (f) Plasma cutting operations with particulate matter emissions less than 5 pounds per hour or 25 pounds per day.

The following conditions shall be applicable:

- (a) This source is subject to 326 IAC 2-6 (Emission Reporting), because it is located in Elkhart county and has the potential to emit more than ten (10) tons per year of VOC. Pursuant to this rule, the owner/operator of the source must annually submit an emission statement for the source. The annual statement must be received by April 15 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8)(Emission Statement Operating Year).

- (b) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:
- (1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
 - (2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.
- (c) 326 IAC 6-3-2 (Process Operations)
Pursuant to 326 IAC 6-3-2(c), the allowable particulate matter emissions rate from any process not already regulated by 326 IAC 6-1 or any New Source Performance Standard, and which has a maximum process weight rate less than 100 pounds per hour shall not exceed 0.551 pounds per hour. The welding operation and the plasma cutting operation listed in the permitted emission units and pollution control equipment section shall be subject to this limit.
- (d) The one (1) assembly area, used for the assembly of fiberglass boats is not subject to the requirements of 326 IAC 8-1-6 because the one (1) assembly area has a total potential to emit VOC of less than 25 tons per twelve (12) consecutive month period. Any change or modification which may increase the potential to emit VOC emissions of the one (1) assembly area used to assemble fiberglass boats to greater than 25 tons per year must be approved by the IDEM, OAQ before such change may occur.
- (e) The one (1) assembly area, used for the assembly of pontoon boats, is not subject to the requirements of 326 IAC 8-1-6 because the one (1) assembly area has a total potential to emit VOC of less than 25 tons per twelve (12) consecutive month period. Any change of modification which may increase the potential to emit VOC emissions of the one (1) assembly area used to assemble pontoon boats to greater than 25 tons per year must be approved by the IDEM, OAQ.

An authorized individual shall provide an annual notice to the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.5-4(a)(3)). The annual notice shall be submitted to:

**Compliance Data Section
Office of Air Quality
100 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015**

no later than April 15 of each year, with the annual notice being submitted in the format attached.

Bennington Marine Corp.
Elkhart, Indiana
00098
Permit Reviewer: NH/EVP

Page 3 of 3
R039-14119-

This registration supersedes FESOP 039-5829-00098, issued on December 9, 1996.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

NH/EVP

cc: File - Elkhart County
Elkhart County Health Department
Air Compliance - Paul Karkiewicz
Northern Regional Office
Permit Tracking
Air Programs Section- Michelle Boner

Registration

This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3)

Company Name:	Bennington Marine Corp.
Address:	52791 CR 113, Elkhart, IN 46514
City:	Elkhart
Authorized individual:	Shelly R. Miller
Phone #:	(219) 264-4599 x 3637
Registration #:	039-14119-00098

I hereby certify that Bennington Marine Corp. is still in operation and is in compliance with the requirements of Registration 039-14119-00098.

Name (typed):
Title:
Signature:
Date:

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name: Bennington Marine Corp.
Source Location: 52791 CR 113, Elkhart, IN 46514
County: Elkhart
SIC Code: 3732
Operation Permit No.: R039-14119-00098
Permit Reviewer: NH/EVP

The Office of Air Quality (OAQ) has reviewed an application from Bennington Marine Corp. relating to the operation of a general boat assembly facility.

History

Bennington Corporation was issued a FESOP 039-5829-00098 on December 9, 1996. On March 9, 2001 Bennington Corporation submitted a FESOP renewal application to IDEM, OAQ. The renewal application requested a name change to Dusterfield Corporation and Bennington Marine Corp.

On November 15, 2001, the source submitted a letter to IDEM, OAQ requesting to convert their FESOP renewal to a Registration. The letter stated that on May 10th, 2001, Dusterfield Corporation ceased operations and sold the equipment related to the operation and that existing units solely are by Bennington Marine Corp.

The source wide emissions from the Bennington Marine Corp. will be at registration levels. Bennington Marine Corp. will produce an additional product, however, they will not be adding any air pollution equipment. The additional product line will be the assembly of fiberglass boats and will have additional air emissions. Bennington Marine Corp. will not be in the open mold reinforced plastic composites fabrication business, only the general assembly of boats.

New Emission Area

One (1) assembly area, used for the assembly of fiberglass boats, exhausting to the atmosphere consisting of:

- (1) Cleaning operations with volatile organic compounds;
- (2) Gluing operations with volatile organic compounds.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

- (a) One (1) assembly area, used for the assembly of pontoon boats, exhausting to the atmosphere consisting of:
 - (1) Cleaning operations with volatile organic compounds;
 - (2) Water-based gluing operations with volatile organic compounds;
- (b) Paved and unpaved roads and parking lots with public access;
- (c) Equipment used to collect any material that might be released during a malfunction, process upset, or spill cleanup, including catch tanks, temporary liquid separators, tanks, and fluid handling equipment;
- (d) Welding operations with particulate matter emissions less than 5 pounds per hour or 25 pounds per day; and
- (e) Plasma cutting operations with particulate matter emissions less than 5 pounds per hour or 25 pounds per day.

All remaining activities at the source after removal of equipment listed in this section are considered insignificant activities.

Permitted Emission Units and Pollution Control Equipment Removed from the Source

The following significant activities have been removed from the source:

- (a) One (1) wood-fired boiler, identified as EU-01, with a maximum capacity of 6.9 million (MM) British thermal units (Btu) per hour, utilizing a cyclone for particulate control and exhausting to one (1) stack, identified as S-1;
- (b) One (1) UV coating line consisting of one (1) stain booth, one (1) sealer booth, and one (1) topcoat booth, identified as EU-2A, with a maximum capacity of 2,520 square feet per hour, using an air assisted airless spray application method, utilizing baffles and two (2) sets of dry filters for particulate control, exhausting at twelve (12) stacks, identified as S-A through S-L;
- (c) Two (2) paint booths, identified as EU-2B, with a maximum capacity of 1,250 square feet per hour, using an air assisted airless spray application method, utilizing dry filters for particulate control, exhausting at two (2) stacks, identified as S-R and S-Q;
- (d) One (1) general clean-up area for UV and conventional paint lines, identified as EU-2C, using a brush or wipe application, with a maximum capacity of 1,250 square feet per hour, exhausting through general ventilation;
- (e) One (1) woodworking operation, identified as EU-3A, with a maximum throughput of 2,767 pounds per hour of hardwood, exhausting to Baghouse A and Baghouse B (S-DC-1 through S-DC-7); and
- (f) One (1) woodworking operation, identified as EU-3B, with a maximum throughput of 2,762.13 square feet per hour of plywood, exhausting to Baghouse C and Cyclone C (S-

DC-8).

The following insignificant activities were also removed from the source:

- (a) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour;
 - (1) One (1) boiler, rated at 7.658 MMBtu/hr;
- (b) Combustion source flame safety purging on startup;
- (c) Machining where an aqueous cutting coolant continuously floods the machining interface;
- (d) Degreasing operations that do not exceed 145 gallons per 12 months, except if subject to 326 IAC 20-6;
 - (1) One (1) maintenance parts washer;
- (e) Closed loop heating and cooling systems;
- (f) Water based adhesives that are less than or equal to 5 percent by volume of VOCs excluding HAPs;
- (g) Replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment;
- (h) Heat exchanger cleaning and repair;
- (i) Underground conveyors;
- (j) Blowdown for any of the following: sight glass; boilers; compressors; pumps; and cooling towers;
- (k) On-site fire and emergency response training approved by the department;
- (l) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing; polishing; abrasive blasting; pneumatic conveying; and woodworking operations;
- (m) Filter or coalescer media changeout;
- (n) Activities with emission equal to or less than thresholds that require listing only:
 - (1) Nelsonite Sealer used to seal panel edges. Only nine (9) gallons used per year since 1994 (seasonal usage);
 - (2) KEI dust collector emits 0.79 pounds per hour, 18.9 pounds per day, and 3.45 tons per year maximum potential PM emissions before controls (99 percent);
 - (3) Kraemer dust collector emits 0.006 pounds per hour, 0.144 pounds per day, and

- 0.026 tons per year maximum potential PM10 emissions before controls (99 percent); and
- (4) Clean-up degreasers emissions amount to 0.007 pounds per hour, 0.17 pounds per day, and 0.03 tons per year maximum potential VOC emissions.

Unpermitted Emission Units and Pollution Control Equipment

There are no unpermitted facilities operating at this source during this review process.

Existing Approvals

The source has been operating under previous approvals including, but not limited to, the following:

- (a) FESOP 039-5829-00098, issued on December 9, 1996;
- (b) Administrative Amendment 039-8888-00098, issued on January 6, 1998; and
- (c) Second Administrative Amendment 039-14271-00098, issued on May 9, 2001.

None of the conditions from the previous approvals were incorporated into this permit, due to the removal of all the previously permitted significant activities.

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on March 9, 2001, with additional information received on November 15, 2001.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (Appendix A, pages 1 through 4).

Potential To Emit of Source Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency."

Pollutant	Potential To Emit (tons/year)
PM	5.25

PM-10	5.25
SO ₂	0.00
VOC	20.33
CO	0.00
NO _x	0.00

HAP's	Potential To Emit (tons/year)
Ethylbenzene	0.26
Xylene	0.90
Dimethyl Phthalate	0.10
Dibutylphalate	0.14
Styrene	3.17
Methyl Methacrylate	1.55
Glycol Ethers	0.15
Vinyl Acetate	0.60
TOTAL	6.88

- (a) Potential emissions (as defined in the Indiana Rule) of VOC are less than 25 tons per year, but greater than 5 tons per year. Therefore, pursuant to 326 IAC 2-5-5, a registration is required.

County Attainment Status

The source is located in Elkhart County.

Pollutant	Status
PM-10	attainment
SO ₂	attainment
NO ₂	attainment
Ozone	maintenance
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_x) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Elkhart County has been designated as maintenance attainment for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Elkhart County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (c) Fugitive Emissions
 Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2, 40 CFR 52.21, or 326 IAC 2-3 and since there are no applicable New Source

Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

Source Status

Existing Source PSD, Part 70 or FESOP Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	5.25
PM10	5.25
SO ₂	0.00
VOC	20.33
CO	0.00
NO _x	0.00
Total HAPs	6.88
Single HAP (worst case)	3.17

- (a) This existing source is **not** a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not in one of the 28 listed source categories.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source, the total emissions indicated in this permit R-039-14119-00098, is not anymore subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
(b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
(c) any combination of HAPs is less than 25 tons/year.

This status is based on all the air approvals issued to the source. This status has been verified by the OAQ inspector assigned to the source.

Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this source.

- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because it is located in Elkhart county and has the potential to emit more than ten (10) tons per year of VOC. Pursuant to this rule, the owner/operator of the source must annually submit an emission statement for the source. The annual statement must be received by April 15 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8)(Emission Statement Operating Year).

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 6-3-2 (Process Operations)

Pursuant to 326 IAC 6-3-2(c), the allowable particulate matter emissions rate from any process not already regulated by 326 IAC 6-1 or any New Source Performance Standard, and which has a maximum process weight rate less than 100 pounds per hour shall not exceed 0.551 pounds per hour. The welding operation and the plasma cutting operation listed in the permitted emission units and pollution control equipment section shall be subject to this limit.

326 IAC 8-1-6 (New Facilities; General Reduction Requirements)

- (a) The one (1) assembly area, used for the assembly of fiberglass boats is not subject to the requirements of 326 IAC 8-1-6 because the one (1) assembly area has a total potential to emit VOC of less than 25 tons per twelve (12) consecutive month period. Any change or modification which may increase the potential to emit VOC emissions of the one (1) assembly area used to assemble fiberglass boats to greater than 25 tons per year must be approved by the IDEM, OAQ before such change may occur.
- (b) The one (1) assembly area, used for the assembly of pontoon boats, is not subject to the requirements of 326 IAC 8-1-6 because the one (1) assembly area has a total potential to emit VOC of less than 25 tons per twelve (12) consecutive month period. Any change of modification which may increase the potential to emit VOC emissions of the one (1) assembly area used to assemble pontoon boats to greater than 25 tons per year must be approved by the IDEM, OAQ.

Even when the one (1) assembly area , used for the assembly of fiberglass boats and the one (1) assembly area, used for the assembly of pontoon boats are combined they are still not subject to the requirements of 326 IAC 8-1-6 because the total potential to emit VOC is less than 25 tons per twelve (12) consecutive month period.

326 IAC 8-12 (Shipbuilding or Ship Repair Operations in Clark, Floyd, Lake, and Porter Counties)
The requirements of this rule apply to shipbuilding or ship repair facilities that are located in Lake, Porter, Clark or Floyd Counties and that emit or have the potential to emit VOC's greater than 100 tons per year in Clark and Floyd Counties; 25 tons per year in Lake or Porter Counties. This rule is not applicable to this source since it is located in Adams County and also because this source does not meet the definition of a Shipbuilding or Ship Repair Operation.

Conclusion

The operation of this general boat assembly facility shall be subject to the conditions of the attached proposed **Registration 039-14119-00098**. This registration supersedes FESOP 039-5829-00098, issued on December 9, 1996.

Appendix A: Emission Calculations

Company Name: Bennington Marine Corp.
Address City IN Zip: 52791 County Road 113, Elkhart, IN 46514
Registration: 039-14119
Pit ID: 039-00098
Reviewer: NH/EVP

Uncontrolled Potential Emissions (tons/year)			
Emissions Generating Activity			
Pollutant	Assembly Area	Welding Operation	TOTAL
PM	0.00	5.25	5.25
PM10	0.00	5.25	5.25
SO2	0.00	0.00	0.00
NOx	0.00	0.00	0.00
VOC	20.33	0.00	20.33
CO	0.00	0.00	0.00
total HAPs	6.88	0.00	6.88
worst case single HAP	3.17	0.00	3.17
<i>Total emissions based on rated capacity at 8,760 hours/year.</i>			
Controlled Potential Emissions (tons/year)			
Emissions Generating Activity			
Pollutant	Assembly Area	Welding Operation	TOTAL
PM	0.00	5.25	5.25
PM10	0.00	5.25	5.25
SO2	0.00	0.00	0.00
NOx	0.00	0.00	0.00
VOC	20.33	0.00	20.33
CO	0.00	0.00	0.00
total HAPs	6.88	0.00	6.88
worst case single HAP	3.17	0.00	3.17
<i>Total emissions based on rated capacity at 8,760 hours/year, after control.</i>			

**Appendix A: Emissions Calculations
VOC and Particulate
From Surface Coating Operations**

Company Name: Bennington Marine Corp.
Address City IN Zip: 52791 County Road 113, Elkhart, IN 46514
Registration: 039-14119
Pit ID: 039-00098
Reviewer: NH/EVP

Material	Density (Lb/Gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Volatiles (solids)	Gal of Mat. (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year	Particulate Potential (ton/yr)	lb VOC/gal solids	Transfer Efficiency
Repair Hull & Decks																
Armorflex Buffback*	11.1505	32.53%	0.0%	32.5%	0.0%	0.00%	0.125017	1.880	3.63	3.63	0.85	20.46	1.84	0.00	ERR	100%
w/ Norac MEKP 925 Clear @ 2%	9.163	5.00%	0.0%	5.0%	0.0%	0.00%	0.003056	1.880	0.46	0.46	0.00	0.06	0.01	0.00	ERR	100%
Assembly FRP																
IPS Weid-On SS214 Component A	7.83	7.99%	0.0%	8.0%	0.0%	0.00%	0.026820	1.880	0.63	0.63	0.03	0.76	0.14	0.00	ERR	100%
IPS Weid-On SS214 Component B	9.05	6.91%	0.0%	6.9%	0.0%	0.00%	0.002210	1.880	0.63	0.63	0.00	0.06	0.01	0.00	ERR	100%
Trempro 650	9.75	9.30%	0.0%	9.3%	0.0%	0.00%	0.161026	1.880	0.91	0.91	0.27	6.59	1.20	0.00	ERR	100%
Buckeye Blue	8.66	88.00%	88.0%	0.0%	0.0%	0.00%	0.030485	1.880	0.00	0.00	0.00	0.00	0.00	0.00	ERR	100%
Dry Lubricant	8.33	81.50%	0.0%	81.5%	0.0%	0.00%	0.008163	1.880	6.79	6.79	0.10	2.50	0.46	0.00	ERR	100%
Foaming Fabric	8.55	8.00%	0.0%	8.0%	0.0%	0.00%	0.007135	1.880	0.68	0.68	0.01	0.22	0.04	0.00	ERR	100%
Assembly Pontoon																
Adhesive	10.41	29.60%	29.6%	0.0%	0.0%	0.00%	0.016234	3.130	0.00	0.00	0.00	0.00	0.00	0.00	ERR	100%
Boss Silicone Sealant	8.58	5.25%	0.0%	5.3%	0.0%	0.00%	0.015851	3.130	0.45	0.45	0.02	0.54	0.10	0.00	ERR	100%
Buckeye Blue	8.66	88.00%	88.0%	0.0%	0.0%	0.00%	0.051155	3.130	0.00	0.00	0.00	0.00	0.00	0.00	ERR	100%
Dry Lubricant	8.33	81.50%	0.0%	81.5%	0.0%	0.00%	0.021729	3.130	6.79	6.79	0.46	11.08	2.02	0.00	ERR	100%
Foaming Fabric	8.55	8.00%	0.0%	8.0%	0.0%	0.00%	0.021170	3.130	0.68	0.68	0.05	1.09	0.20	0.00	ERR	100%
Vetac water based adhesive	8.91	48.11%	43.2%	4.9%	0.0%	0.00%	1.301684	3.130	0.44	0.44	1.78	42.60	7.78	0.00	ERR	100%
Terp-A-Klean	6.83	95.00%	0.0%	95.0%	0.0%	0.00%	0.073499	3.130	6.49	6.49	1.49	35.82	6.54	0.00	ERR	100%

State Potential Emissions

Add worst case coating to all solvents

5.07

121.79

20.33

0.00

METHODOLOGY

* Styrene Emission Rate = 245.74 lb/ton and MMA Emission Rate = 75.00 lb/ton.

The Armorflex Buffback VOC tons/yr = (((245.74 lb/ton * ((1.394 lb/unit*1.88 unit/hr)/2000)))+(75 lb/ton*((1.394 lb/unit*1.88 unit/hr)/2000 lb/ton)))/2000 lb/ton* 8760 hrs/yr

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) * Weight % Organics) / (1-Volume % water)

Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)

Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)

Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24 hr/day)

Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 ton/2000 lbs)

Particulate Potential Tons per Year = (units/hour) * (gal/unit) * (lbs/gal) * (1- Weight % Volatiles) * (1-Transfer efficiency) *(8760 hrs/yr) *(1 ton/2000 lbs)

Pounds VOC per Gallon of Solids = (Density (lbs/gal) * Weight % organics) / (Volume % solids)

Total = Worst Coating + Sum of all solvents used

Appendix A: Emission Calculations
HAP Emission Calculations

Company Name: Bennington Marine Corp.
Address City IN Zip: 52791 County Road 113, Elkhart, IN 46514
Registration: 039-14119
Pit ID: 039-00098
Permit Reviewer: NH/EVP

Material	Density (Lb/Gal)	Gallons of Material (gal/unit)	Maximum (unit/hour)	Weight % Ethylbenzene	Weight % Xylene	Weight % Methyl Ethyl Ketone	Weight % Dimethyl Phthalate	Weight % Dibutylphthalate	Weight % Styrene	Weight % Methyl Methacrylate	Weight % Glycol Ethers	Weight % Vinyl Acetate	Ethylbenzene Emissions (ton/yr)	Xylene Emissions (ton/yr)	Methyl Ethyl Ketone Emissions (ton/yr)	Dimethyl Phthalate Emissions (ton/yr)	Dibutylphthalate Emissions (ton/yr)	Styrene Emissions (ton/yr)	Methyl Methacrylate Emissions (ton/yr)	Glycol Ethers Emissions (ton/yr)	Vinyl Acetate Emissions (ton/yr)	
Repair Hull & Decks																						
Armorflex Buffback	11.1505	0.125017	1.88	0.00%	0.00%	0.00%	0.00%	0.00%	27.61%	4.50%	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	3.17	0.52	0.00	0.00
w/ Norac MEKP 925 Clear @ 2%	9.163	0.003056	1.88	0.00%	0.00%	2.00%	43.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
Assembly FRP																						
IPS Weld-On SS214 Component A	7.83	0.026820	1.88	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	60.00%	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	0.00	0.00
IPS Weld-On SS214 Component B	9.05	0.002210	1.88	0.00%	0.00%	0.00%	0.00%	85.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00
Trempro 650	9.75	0.161026	1.88	2.00%	7.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.26	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foaming Fabric	8.55	0.007135	1.88	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.00%	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00
Assembly Pontoon																						
Foaming Fabric	8.55	0.021170	3.13	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.00%	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00
Vetak water based adhesive	8.91	1.301684	3.13	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.38%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60

Total State Potential Emissions

0.26 0.90 0.00 0.10 0.14 3.17 1.55 0.15 0.60

METHODOLOGY

Total HAPs = 6.88

HAPS emission rate (tons/yr) = Density (lb/gal) * Gal of Material (gal/unit) * Maximum (unit/hr) * Weight % HAP * 8760 hrs/yr * 1 ton/2000 lbs

Appendix A: Welding and Thermal Cutting

Company Name: Bennington Marine Corp.
Address City IN Zip: 52791 County Road 113, Elkhart, IN 46514
Registration: 039-14119-00098
Reviewer: NH/EVP

PROCESS	Number of Stations	max. electrode consumption per station (lbs/hr)		EMISSION FACTORS * (lb pollutant / lb electrode)				EMISSIONS (lb/hr)				TOTAL HAPS (lb/hr)
				PM = PM10	Mn	Ni	Cr	PM = PM10	Mn	Ni	Cr	
WELDING												
Metal Inert Gas (MIG)(ER4043)	1	6		0.0107	--	--	--	0.064	0.00	0.00	0.00	0.000
Metal Inert Gas (MIG)(ER5356)	1	6		0.0723	--	--	--	0.434	0.00	0.00	0.00	0.000
Tungsten Inert Gas (TIG)(4043)	1	8		0.0107	--	--	--	0.086	0.00	0.00	0.00	0.000
Tungsten Inert Gas (TIG)(5356)	1	8		0.0723	--	--	--	0.578	0.00	0.00	0.00	0.000
FLAME CUTTING	Number of Stations	Max. Metal Thickness Cut (in.)	Max. Metal Cutting Rate (in./minute)	EMISSION FACTORS (lb pollutant/1,000 inches cut, 1" thick)				EMISSIONS (lbs/hr)				TOTAL HAPS (lb/hr)
				PM = PM10	Mn	Ni	Cr	PM = PM10	Mn	Ni	Cr	
Plasma	1	0.1875	20	0.1622	0.0005	0.0001	0.0003	0.036	0.00	0.00	0.00	0.000
EMISSION TOTALS								PM = PM10	Mn	Ni	Cr	Total HAPS
Potential Emissions lbs/hr								1.20	0.00	0.00	0.00	0.00
Potential Emissions lbs/day								28.76	0.00	0.00	0.00	0.00
Potential Emissions tons/year								5.25	0.00	0.00	0.00	0.00

METHODOLGY

*Emission Factors are default values for carbon steel unless a specific electrode type is noted in the Process column. Consult AP-42 or other reference for different electrode types.

Welding emissions, lb/hr: (# of stations)(max. lbs of electrode used/hr/station)(emission factor, lb. pollutant/lb. of electrode used)

Cutting emissions, lb/hr: (# of stations)(max. metal thickness, in.)(max. cutting rate, in./min.)(60 min./hr.)(emission factor, lb. pollutant/1,000 in. cut, 1" thick)

Emissions, lbs/day = emissions, lbs/hr x 24 hrs/day

Emissions, tons/yr = emissions, lb/hr x 8,760 hrs/day x 1 ton/2,000 lbs.

Plasma cutting emission factors are from the American Welding Society study published in Sweden (March 1994).

Welding and other flame cutting emission factors are from an internal training session document.

See AP-42, Chapter 12.19 for additional emission factors for welding.